

## CLAIMS

1. An electro-acoustic communications unit (10) comprising:

- 5                   - a housing with a wall (12) defining an interior, having a certain volume (V),  
                    and an exterior,  
                    - an acoustic driver (14) for generating acoustic signals, said acoustic driver  
                    (14) being mounted to the wall (12),  
10                   - an acoustic port (16, 26), having a length (L) and a cross-sectional area (A),  
                    said port (16, 26) penetrating the wall (12) and connecting the interior of the  
                    housing with the exterior of said housing,

                    where the volume (V), length (L) and cross-sectional area (A) are dimensioned in  
                    relation to the acoustic driver (14) in a way such that said electro-acoustic  
15                   communications unit (10) achieves a desired frequency characteristics when engaging  
                    the exterior end (22, 32) of said acoustic port (16, 26) of the communications unit  
                    (10) with a user's ear (18).

20                   2. The electro-acoustic communications unit (10) according to claim 1, wherein the  
                    housing defined by the wall (12) is tightly sealed.

                    3. The electro-acoustic communications unit (10) according to claim 1, wherein the  
                    acoustic driver (14) has an interior side and an exterior side, with respect to the wall  
                    (12), and that the interior side of the driver drives acoustic signals into the interior of  
25                   the housing.

                    4. The electro-acoustic communications unit (10) according to claim 3, wherein the  
                    acoustic port (16, 26) makes use of the acoustic signals driven into the interior of the  
                    housing.

30                   5. The electro-acoustic communications unit (10) according to claim 3, wherein the  
                    acoustic signals generated by the exterior side of the driver (14), are directed to  
                    dissipate without being used by the user.

35                   6. The electro-acoustic communications unit (10) according to claim 1, wherein the  
                    volume (V) of the housing is of the order a few between 0,5 and 10 cubic centimeters  
                    ( $\text{cm}^3$ ), the length (L) of the acoustic port (16, 26) of the order of a few between 0,5  
                    and 20 centimeters (cm) and the cross-sectional area (A) of the acoustic port (16, 26)  
                    of the order of between 1 and 120 square millimeters ( $\text{mm}^2$ ).

40                   7. Portable communication device (20, 30) comprising an electro-acoustic  
                    communications unit (10) having:

- a housing with a wall (12) defining an interior, having a certain volume (V), and an exterior,
- an acoustic driver (14) for generating acoustic signals, said acoustic driver (14) being mounted to the wall (12),
- an acoustic port (16, 26), having a length (L) and a cross-sectional area (A), said port (16, 26) penetrating the wall (12) and connecting the interior of the housing with the exterior of said housing,

where the volume (V), length (L) and cross-sectional area (A) are dimensioned in relation to the acoustic driver (14) in a way such that said portable communication device (20,30) achieves a desired frequency characteristics when engaging the exterior end (22, 32) of said acoustic port (16, 26) of the communications unit (10) with a user's ear (18).

8. Portable communication device (20, 30), according to claim 7, wherein the device is a mobile phone.

9. Portable communications device (20, 30), according to any of claims 7 or 8, in which the acoustic signals generated by an exterior side of the driver (14), with respect to the housing wall (12), are attenuated by said device (20, 30).